Amendments

In the Claims:

What is claimed is:

[c1]   (Original) An apparatus for monitoring a meter, comprising:

a meter that monitors usage of a distribution system;

an electronic data recorder that processes data from the meter;

an external unit that controls the processing of data in the electronic data recorder with a communication protocol; and

where the communication protocol comprises,

an initialization signal,

an interval identification signal, and

a clock signal.

[c2]   (Original) The apparatus of claim 1, where the meter is a utility meter.

[c3]   (Original) The apparatus of claim 2, where the utility meter is a water meter.

[c4]   (Original) The apparatus of claim 3, where the water meter is self-powered.

[c5]   (Original) The apparatus of claim 4, where the water meter is power by a Wiegand Wire.

[c6]   (Original) The apparatus of claim 5, where the Wiegand Wire powers the electronic data recorder.

[c7]   (Original) The apparatus of claim 1, where the external unit is a meter interface unit.

[c8]   (Original) The apparatus of claim 1, where the initialization signal is between 25 and 100 milliseconds in duration.

[c9] (Original) The apparatus of claim 1, where the clock signal operates at a frequency of 1200 hertz.

[c10] (Original) The apparatus of claim 1, where the clock signal operates at a frequency of 19.2 kilohertz.

[c11] (Original) The apparatus of claim 1, where the electronic data recorder is activated on 15 minute intervals by the communications protocol.

[c12] (Original) The apparatus of claim 11, where the interval identification signal identifies each 15 minute interval in a one hour time period.

[c13] (Original) The apparatus of claim 1, where the electronic data recorder processes data from the meter to detect a leak in the distribution system.

[c14] (Original) The apparatus of claim 13, where the leak is continuous.

[c15] (Original) The apparatus of claim 13, where the leak is intermittent.

[c16] (Original) The apparatus of claim 13, where the electronic data recorder further processes data from the meter to determine how long the leak has been present.

[c17] (Original) The apparatus of claim 1, where the electronic data recorder processes data from the meter to determine a flowrate in the distribution system.

[c18] (Presently Amended) The apparatus of claim 1, where the electronic data recorder processes data from the meter to determine the direction of a ~~flowrate~~ flow in the distribution system.

[c19] (Presently Amended) The apparatus of claim 1, where the electronic data recorder processes data from the meter to detect an absence of a ~~flowrate~~ <u>flow</u> in the distribution system.

[c20] (Presently Amended) The apparatus of claim 19, where the electronic data recorder further processes data from the meter to determine how long the ~~flowrate~~ <u>flow</u> has been absent.

[c21] (Original) The apparatus of claim 1, where the electronic data recorder processes data from the meter to detect backflow in the distribution system.

[c22] (Original) The apparatus of claim 21, where the backflow is continuous.

[c23] (Original)An apparatus for monitoring meter usage, comprising:

    a meter that monitors usage of a distribution system;

    means for receiving data from the meter;

    means for processing data from the meter; and

    means for detecting a leak in the distribution system.

[c24] (Original)The apparatus of claim 23, further comprising:

    means for determining a flowrate in the distribution system.

[c25] (Presently Amended) The apparatus of claim 23, further comprising:

    means for determining the direction of a ~~flowrate~~ <u>flow</u> in the distribution system.

[c26] (Original) The apparatus of claim 23, further comprising:

    means for detecting an absence of a flow in the distribution system.

[c27] (Original) The apparatus of claim 23, further comprising:

    means for detecting a backflow in the distribution system.

[c28]   (Original) A method for calculating utility usage patterns, comprising:

receiving usage data from a meter that monitors usage of a distribution system;

processing the usage data to calculate utility usage patterns; and

where the utility usage patterns identify predefined conditions in the distribution system.

[c29]   (Original) The method of claim 28, where the predefined conditions are indicated in levels of magnitude.

[c30]   (Original) The method of claim 29, where the predefined conditions are indicated in at least 3 levels of magnitude.

[c31]   (Original) The method of claim 28, where the utility usage patterns are determined on a moving time scale.

[c32]   (Original) The method of claim 28, where the predefined conditions comprise a leak in the distribution system.

[c33]   (Original) The method of claim 28, where the predefined conditions comprise a flowrate in the distribution system.

[c34]   (Presently Amended) The method of claim 28, where the predefined conditions comprise the direction of a ~~flowrate~~ flow in the distribution system.

[c35]   (Original) The method of claim 28, where the predefined conditions comprise an absence of a flow in the distribution system.

[c36]   (Original) The method of claim 28, where the predefined conditions comprise a backflow in the distribution system.

[c37]   (Original) The method of claim 28, where the meter is a water meter.

[c38]   (Original) The method of claim 37, where the water meter is self-powered.

[c39]   (Original) The method of claim 38, where the water meter is powered by a Wiegand Wire.

[c40]   (Original) A method for calculating utility usage patterns, comprising:

      step for receiving usage data of a distribution system;

      step for processing the usage data to calculate utility usage patterns; and

      step for identifying predefined conditions in the distribution system based on the utility usage patterns.